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# (12) United States Patent

# Adams et al.

### (54) SYSTEMS AND METHODS PROVIDING A MOBILE ZERO CLIENT

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This patent is subject to a terminal dis-

claimer.

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(58) Field of Classification Search

None

See application file for complete search history.

# (56) References Cited

#### U.S. PATENT DOCUMENTS

| 7,685,253    | B1 | 3/2010  | Valia     | 709/217 |
|--------------|----|---------|-----------|---------|
| 2007/0083660 | A1 | 4/2007  | Thornton  | 709/227 |
| 2011/0320405 | A1 | 12/2011 | Hsu et al | 707/634 |
| 2012/0092277 | A1 | 4/2012  | Momchilov | 345/173 |

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## (57) ABSTRACT

The disclosure relates to a portable computing device configured to selectably switch between a wired zero client mode in which the portable computing device operates as a terminal for a host computer via a wired communication channel, a wireless zero client mode in which the portable computing device operates as a terminal for the host computer via a wireless communication channel, and a local mode in which the portable computing device operates independently from the host computer. The portable computing device may include one or more zero client processors that facilitate operation in the wired or wireless zero client mode and one or more local control processors that facilitate operation in the local mode. The portable computing device may include input devices used to receive inputs for the host computer during the wireless or wired zero client modes or for the local control processors during the local mode.

### 24 Claims, 9 Drawing Sheets

